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TITLE: *CONUS* PROTEIN DISULFIDE
ISOMERASE

Inventor: Bulaj et al.

Docket No.: 2699-5613.1US

FIG. 1

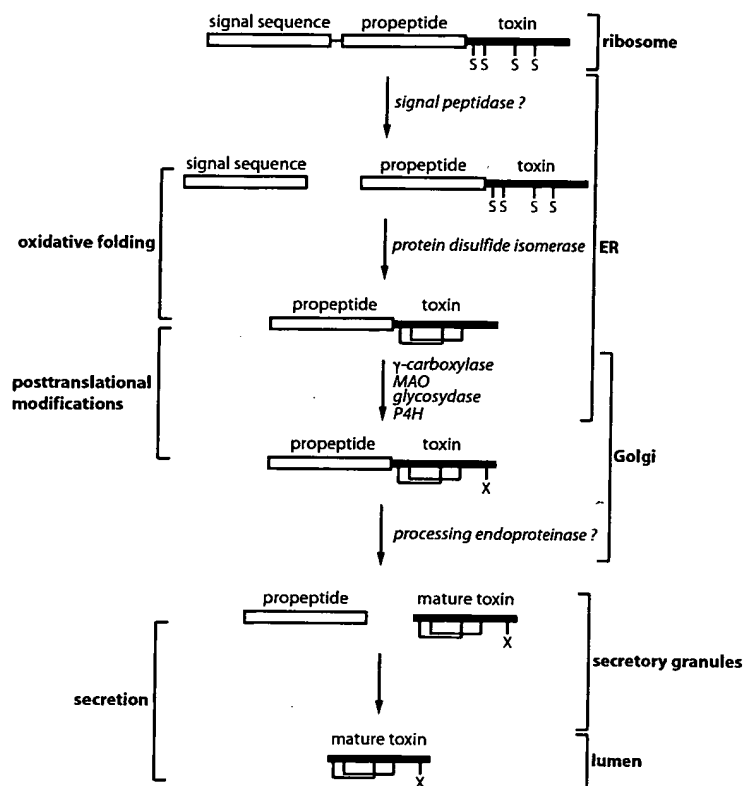


FIG. 2

PDI Species Comparison

Ct-PDI .ami	110	120	130	140	150	160	170	180	190	200
Silkworm-PDI .am	MRVLI	FTAL	ALLG	ALGD	PTEN	VLVS	KANF	ETV	IST	TEY
SeaUrchin-PDI .a	MKYL	ALCF	TALAC	AVHA	VEIE	EDV	AVLT	DAF	ADY	VAEN
Rat-PDI .ami	MLSR	ALLC	LAAL	AAAR	VGAD	ALEE	DNV	LKKS	NFA	LAAL
Human-PDI .ami	MLRR	ALLC	LAAL	AAAR	VGAD	ALEE	DNV	LKKS	NFA	LAAL
Fly-PDI .ami	MKFL	ICAL	FLAA	SYVA	ASAE	AEVK	VEGL	VAT	DNF	KQLT
Celegans-PDI .am	MFR	LVGL	FLVL	GLAS	AAV	IEEEN	VIL	T	KON	FDE
Ct-PDI .ami	110	120	130	140	150	160	170	180	190	200
Silkworm-PDI .am	GYPT	IKFR	KEK	PDGP	ADYSG	GRQAK	DI	VDWL	KKKT	GP
SeaUrchin-PDI .a	GYPT	LKFR	NGS	---	PIDY	SGGR	QAD	I	ISWL	KKKT
Rat-PDI .ami	GYPT	LKFR	SGK	---	DSEY	AGRT	GP	PEIV	AWLN	KKKT
Human-PDI .ami	GYPT	IKFR	NGD	TAS	PKEY	TAG	READ	DI	VNL	KKRT
Fly-PDI .ami	GYPT	IKFR	NGD	TAS	PKEY	TAG	READ	DI	VNL	KKRT
Celegans-PDI .am	GYPT	LKFR	SGS	---	PVEY	SGGR	QAD	I	IAW	VTKT
Ct-PDI .ami	210	220	230	240	250	260	270	280	290	300
Silkworm-PDI .am	MDK	GIVL	LK	KKF	DEGR	NDF	EGN	LEEE	EAIV	KHVR
SeaUrchin-PDI .a	AKDE	SVL	LF	KKF	DEGR	NDF	EGN	LEEE	EAIV	KHVR
Rat-PDI .ami	LDK	GVV	LK	KKF	DEGR	NDF	EGN	LEEE	EAIV	KHVR
Human-PDI .ami	LDK	GVV	LK	KKF	DEGR	NDF	EGN	LEEE	EAIV	KHVR
Fly-PDI .ami	AKD	GVV	LK	KKF	DEGR	NDF	EGN	LEEE	EAIV	KHVR
Celegans-PDI .am	LK	GE	GIV	LK	KKF	DEGR	NDF	EGN	LEEE	EAIV
Ct-PDI .ami	310	320	330	340	350	360	370	380	390	400
Silkworm-PDI .am	ENGR	IT	EF	FL	GK	ODEI	PAVR	LI	QAL	EDM
SeaUrchin-PDI .a	ENGR	IT	EF	FL	GK	ODEI	PAVR	LI	QAL	EDM
Rat-PDI .ami	SNR	ILE	YF	GL	DEE	VP	TR	LI	TDG	MK
Human-PDI .ami	DNQ	ILE	YF	GL	DEE	VP	TR	LI	TDG	MK
Fly-PDI .ami	DHTR	IF	EF	FL	GK	ODEI	PAVR	LI	QAL	EDM
Celegans-PDI .am	ENAR	IF	EF	FL	GK	ODEI	PAVR	LI	QAL	EDM
Ct-PDI .ami	410	420	430	440	450	460	470	480	490	500
Silkworm-PDI .am	CGH	CKQ	LAP	I	WDEL	GE	KYK	DSK	DI	VAK
SeaUrchin-PDI .a	CGH	CKQ	LAP	I	WDEL	GE	KYK	DSK	DI	VAK
Rat-PDI .ami	CGH	CKQ	LAP	I	WDEL	GE	KYK	DSK	DI	VAK
Human-PDI .ami	CGH	CKQ	LAP	I	WDEL	GE	KYK	DSK	DI	VAK
Fly-PDI .ami	CGH	CKQ	LAP	I	WDEL	GE	KYK	DSK	DI	VAK
Celegans-PDI .am	CGH	CKQ	LAP	I	WDEL	GE	KYK	DSK	DI	VAK
Ct-PDI .ami	510	520	530	540	550	560	570	580	590	600
Silkworm-PDI .am	EEG	DE	DL	PR	DEL	N				
SeaUrchin-PDI .a	FE	EE	DP	PA	KDEL					
Rat-PDI .ami	ED	DD	QK	AV	KDEL					
Human-PDI .ami	ED	DD	QK	AV	KDEL					
Fly-PDI .ami	TE	EE	EP	AP	KDEL					
Celegans-PDI .am	EE	GH	TE	L						

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FIG. 3

Conus PDI Alignment

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10      20      30      40      50      60      70      80      90      100
PDI-tex3.ami MKPSSCLVLTLLVFSVSAEDVKQEGVYVLTETKNFADFISDNFVLPVFPWCGCHKALAPEYAKAATLLEEKSNIKLGKVDATVEVNLATKFEVRGYP
PDI-tex2.ami MKFPSCVLTLVFSVSAEDVKQEGVYVLTETKNFADFISDNFVLPVFPWCGCHKALAPEYAKAATLLEEKSNIKLGKVDATVEVNLATKFEVRGYP
PDI-tex1.ami MKPSSCLVLTLLVFSVSAEDVKQEGVYVLTETKNFADFISDNFVLPVFPWCGCHKALAPEYAKAATLLEEKSNIKLGKVDATVEVNLATKFEVRGYP
Ct-PDI.ami    MKPSSCLVLTLLVFSVSAEDVQEQENVHVTKKNFDSFITDNFVLPVFPWCGCHKALAPEYAKAATLLEEKSNIKLGKVDATVEGDLSKFDVVRGYP
***          ***** .*** * * * * * .***          ***** ***** ***** ***** ***** ***** ***** ***** *****
110      120      130      140      150      160      170      180      190      200
PDI-tex3.ami TIKFFHKEMPAGSPADYSGGRQAPDIVGWLKKKTGPPAKELKAKDEVKTFVEKDEVVVGFFKQDQESTGALAFKKAAGIDDDIPFAITSEDHVHFKYKMD
PDI-tex2.ami TIKFFHKEMPAGSPADYSGGRQAPDIVGWLKKKTGPPAKELKAKDEVKTFVEKDEVVVGFFKQDQESTGALAFKKAAGIDDDIPFAITSEDHVHFKYKMD
PDI-tex1.ami TIKFFHKEMPAGSPADYSGGRQAPDIVGWLKKKTGPPAKELKAKDEVKTFVEKDEVVVGFFKQDQESTGALAFKKAAGIDDDIPFAITSEDHVHFKYKMD
Ct-PDI.ami    TIKFFRKEKPDG-PADYSGGRQAKDIVDWLKKKTGPPAKELKEKDEVKAFVEKDEVVVGFFKQDQESTGALAFKKAAGIDDDIPFAITSEDHVHFKYKMD
***          ***** * * * * * ***** ***** ***** ***** ***** ***** ***** ***** ***** *****
210      220      230      240      250      260      270      280      290      300
PDI-tex3.ami KDGIVLLKKFDEGRNDFEGNLEEEAIVKHVRENQLPLVVEFTQESAKIFGGEVKNHILLFLKKEGGEDTIEKFRGAAEDFKGKVLFIYLDTDNEENGR
PDI-tex2.ami KDGIVLLKKFDEGRNDFEGNLEEEAIVKHVRENQLPLVVEFTQESAKIFGGEVKNHILLFLKKEGGEDTIEKFRGAAEDFKGKVLFIYLDTDNEENGR
PDI-tex1.ami KDGIVLLKKFDEGRNDFEGNLEEEAIVKHVRENQLPLVVEFTQESAKIFGGEVKNHILLFLKKEGGEDTIEKFRGAAEDFKGKVLFIYLDTDNEENGR
Ct-PDI.ami    KDGIVLLKKFDEGRNDFEGNLEEEAIVKHVRENQLPLVVEFTQESAKIFGGEVKNHILLFLKKEGGEDTIEKFRSAAEDFKGKVLFIYLDTDNEENGR
***          ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** *****
310      320      330      340      350      360      370      380      390      400
PDI-tex3.ami ITEFFGLKDDDEIPAVRLIQLAEDMSKYKPESDLETATIKKFVQDFLDGKLKPHLMSEDPVPGDWDAPKPVKLVGKNFKEVAMDKSKAVFVEFYAPWCGHC
PDI-tex2.ami ITEFFGLKDDDEIPAVRLIQLAEDMSKYKPESDLETATIKKFVQDFLDGKLKPHLMSEDPVPGDWDAPKPVKLVGKNFKEVAMDKSKAVFVEFYAPWCGHC
PDI-tex1.ami ITEFFGLKDDDEIPAVRLIQLAEDMSKYKPESDLETATIKKFVQDFLDGKLKPHLMSEDPVPGDWDAPKPVKLVGKNFKEVAMDKSKAVFVEFYAPWCGHC
Ct-PDI.ami    ITEFFGLKDDDEIPAVRLIQLAEDMSKYKPESDLETATIKKFVQDFLDGKLKPHLMSEDPVPGDWDAPKPVKLVGKNFKEVAMDKSKAVFVEFYAPWCGHC
***          ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** *****
410      420      430      440      450      460      470      480      490      500
PDI-tex3.ami KQLAPIWDELGEKYKDSKDIVVAKMDATANIEEVKVQSFPTLKYPKDSDEAVDNGERTLDAFVKFLESGGTGAGVQDEDEEEDEEGDDEDLPRD
PDI-tex2.ami KQLAPIWDELGEKYKDSKDIVVAKMDATANIEEVKVQSFPTLKYPKDSDEAVDNGERTLDAFVKFLESGGTGAGVQDEDEEEDEEGDDEDLPRD
PDI-tex1.ami KQLAPIWDELGEKYKDSKDIVVAKMDATANIEEVKVQSFPTLKYPKDSDEAVDNGERTLDAFVKFLESGGTGAGVQDEDEEEDEEGDDEDLPRD
Ct-PDI.ami    KQLAPIWDELGEKYKDSKDIVVAKMDATANIEEVKVQSFPTLKYPKDSSEAVDNGERTLDAFVKFLESGGTGAGVQDEDEEEDEEGDDEDLPRD
***          ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** *****
510      520      530      540      550      560      570      580      590      600
PDI-tex3.ami ELN SEQ ID NO:8
PDI-tex2.ami ELN SEQ ID NO:6
PDI-tex1.ami ELN SEQ ID NO:4
Ct-PDI.ami    ELN SEQ ID NO:2
***

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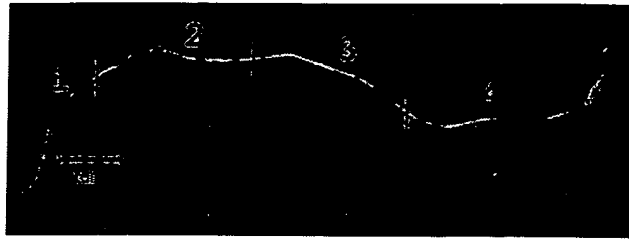


FIG. 4A

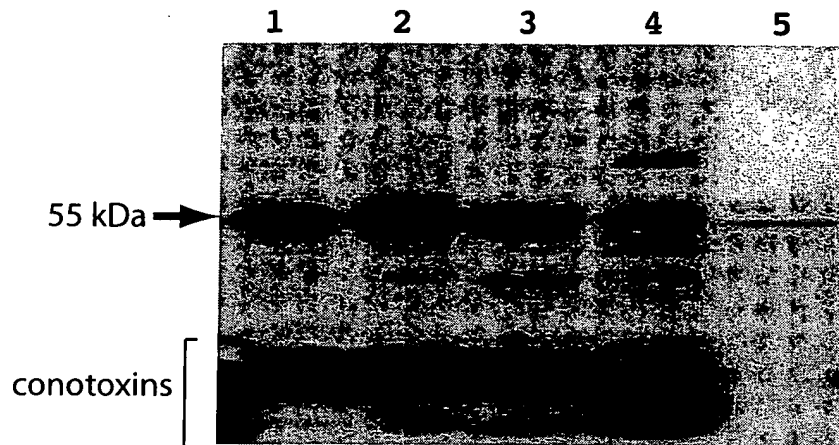


FIG. 4B

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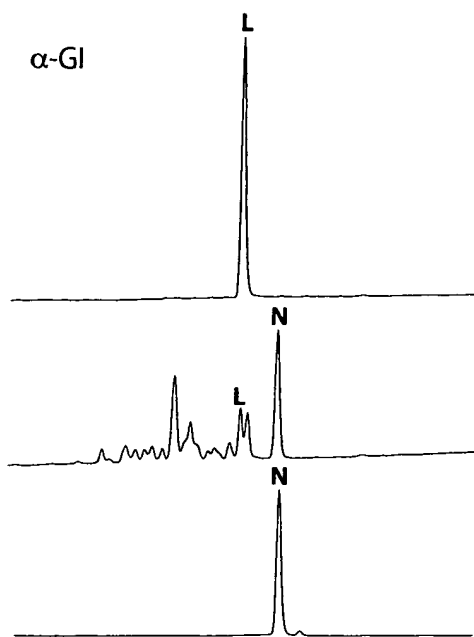


FIG. 5A

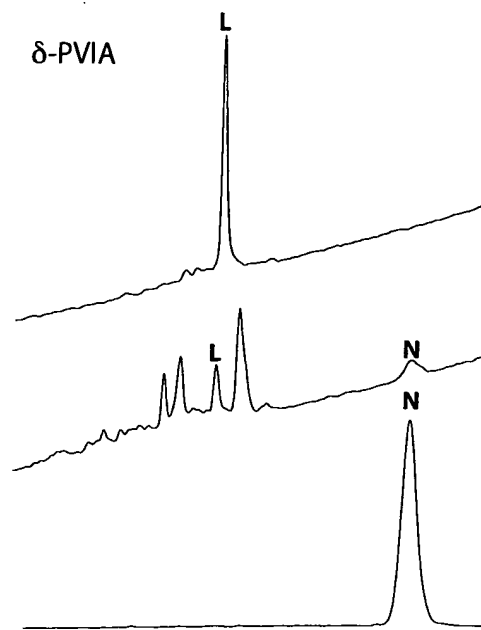


FIG. 5B

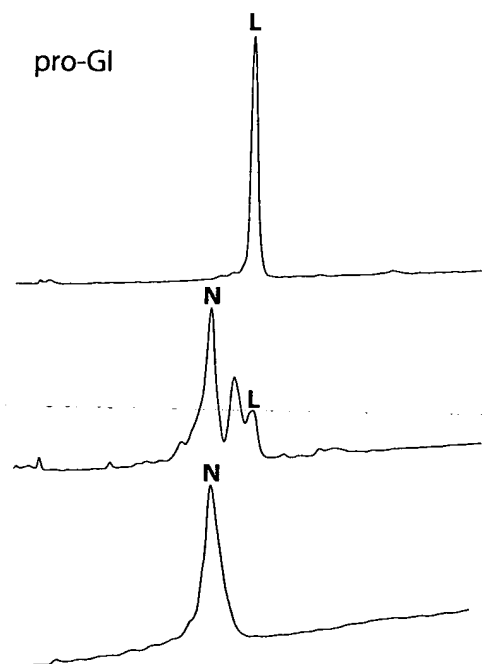


FIG. 5C

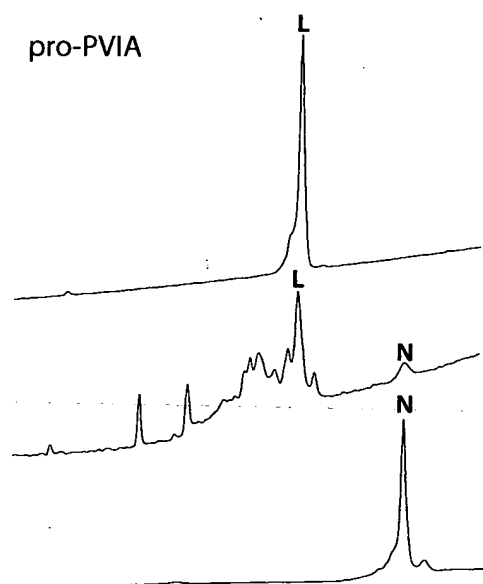
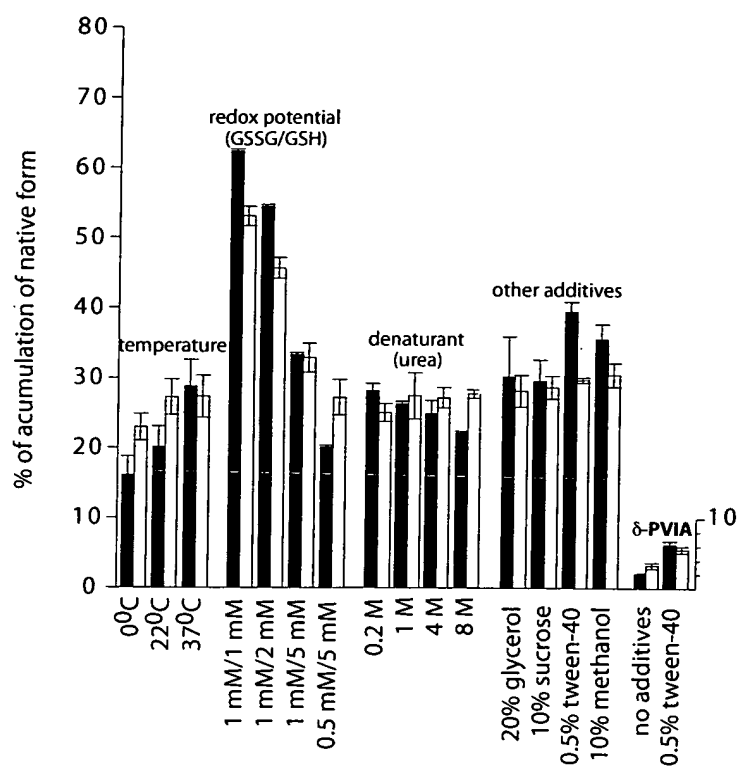


FIG. 5D

FIG. 6



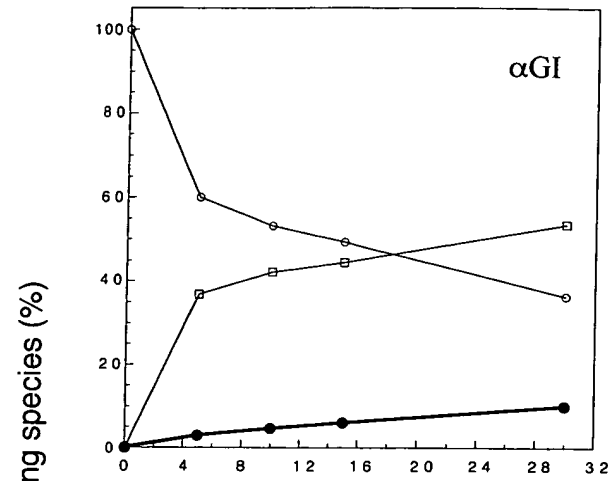


FIG. 7A

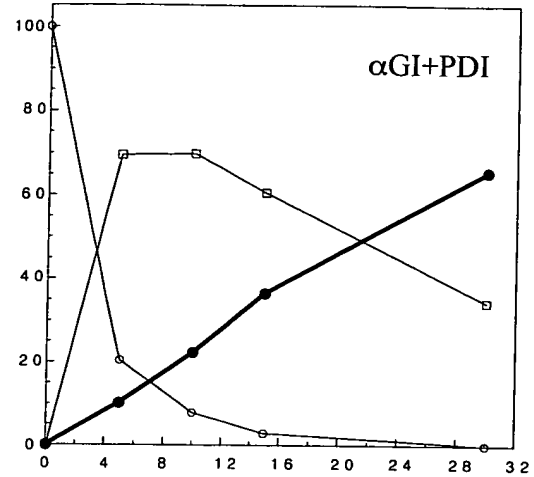


FIG. 7B

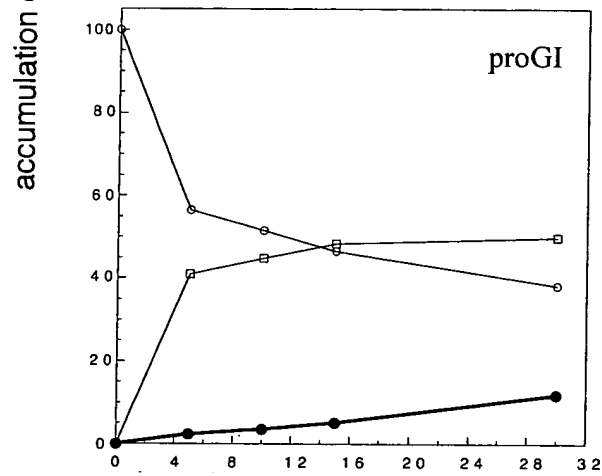


FIG. 7C

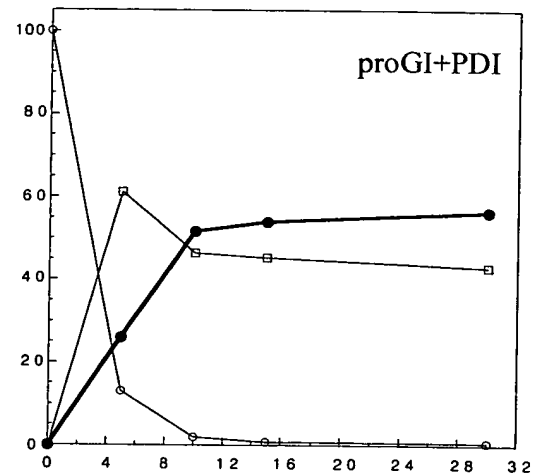


FIG. 7D

folding time (minutes)

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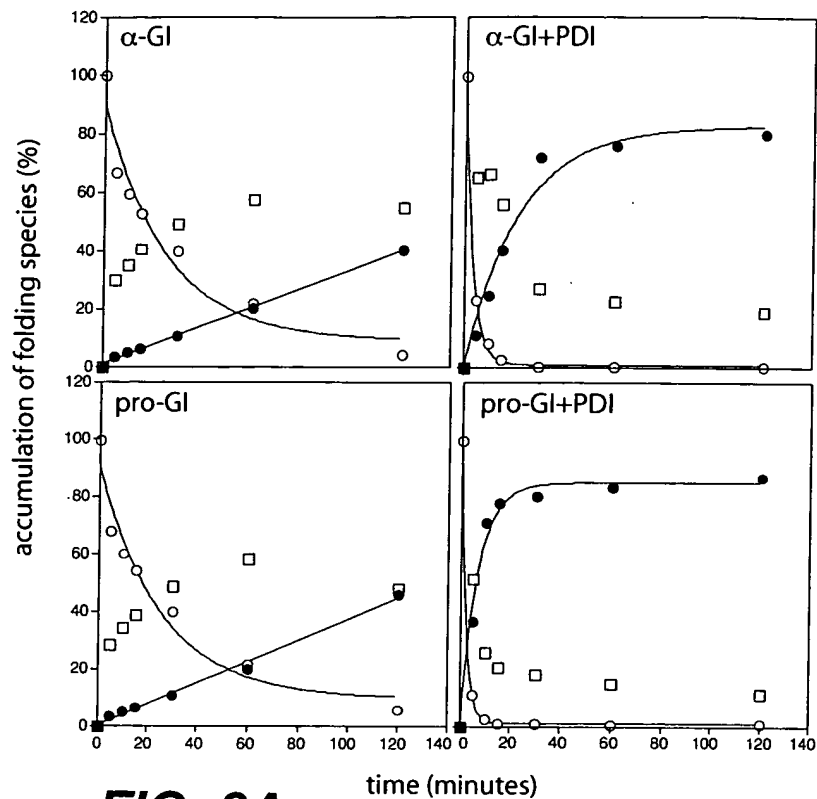


FIG. 8A

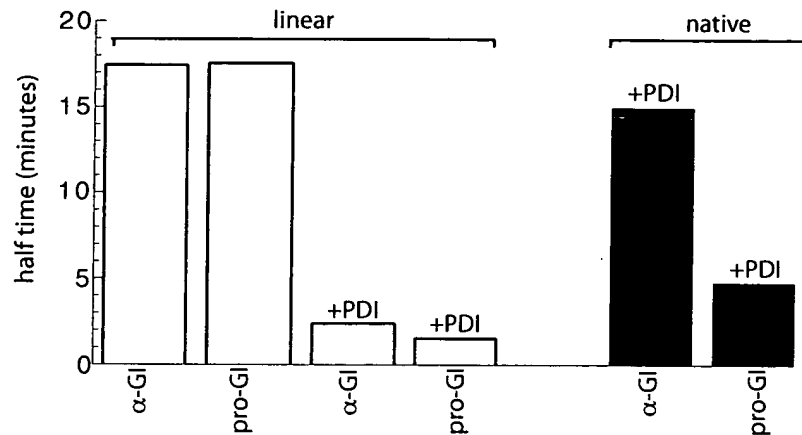


FIG. 8B

FIG. 9

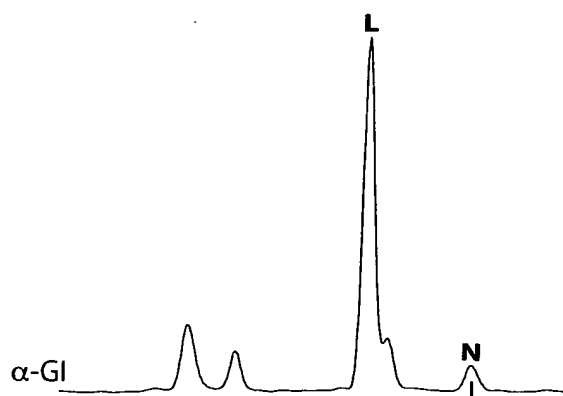


Fig. 9A

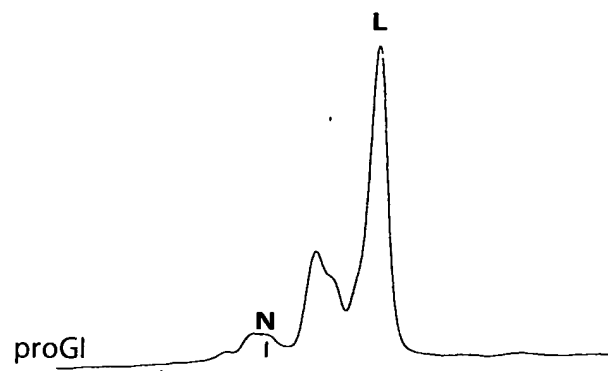


Fig. 9C

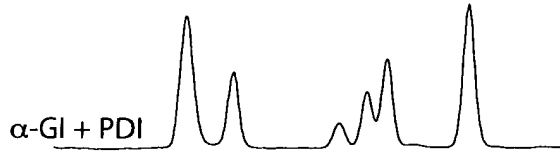
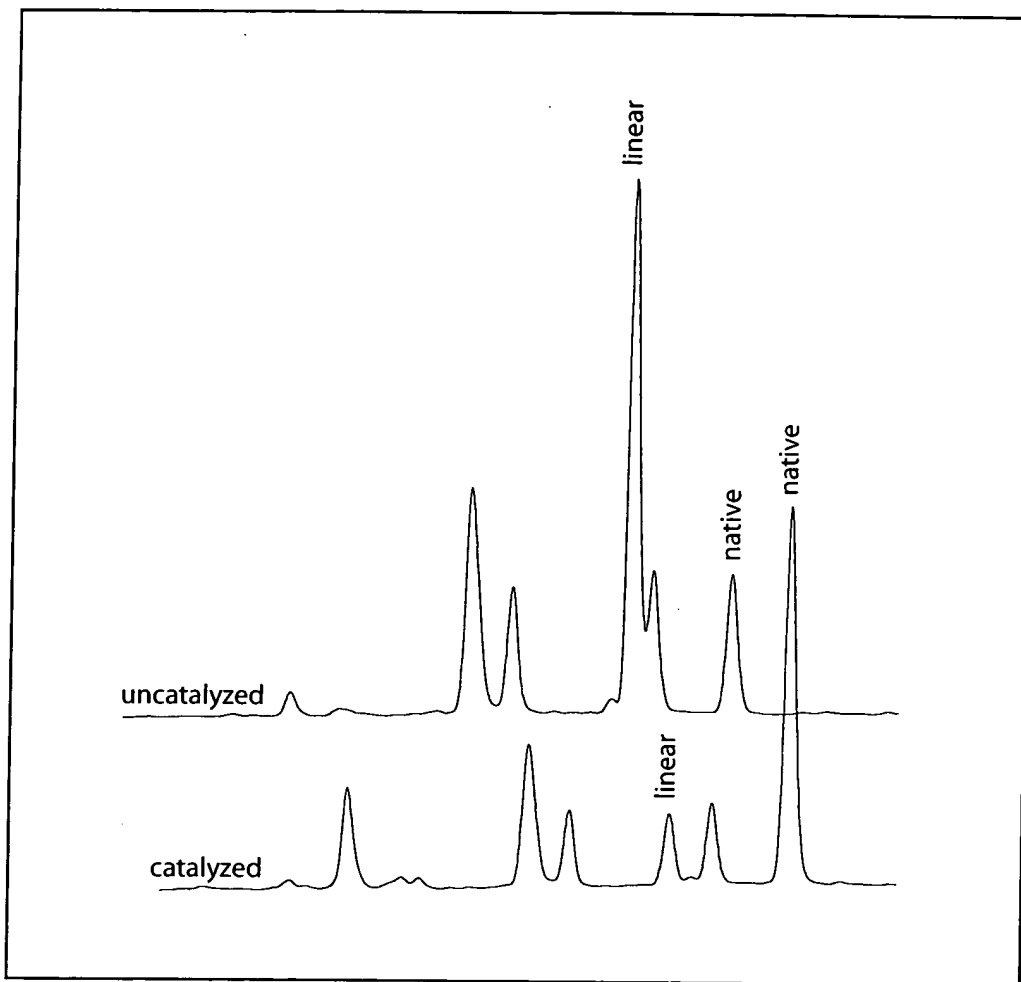


Fig. 9B



Fig. 9D

FIG. 10



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FIG. 11

